Review Article | Psychiatric, Psychological, Social, and Spiritual Issues in Palliative Medicine and Palliative Care

Sexual health after breast cancer: a clinical practice review

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Abstract: Breast cancer (BC) diagnoses not only present physical challenges but profoundly affect survivors' psychosocial well-being leading to sexual health challenges. This clinical practice review aimed to discuss the current literature and outline the knowledge gaps related to care for sexual health after BC, including survivors' sexual health concerns, as well as available prospective surveillance programs. Current literature on the sexual health challenges of BC survivors was identified and sorted into contributing factors, treatments and interventions, and practice recommendations. This evidence was then used to identify gaps in the literature and make recommendations for future research. BC survivors experience a variety of physical symptoms, such as pain during sex or dyspareunia, which impair sexual well-being. Additionally, dissatisfaction with sexual function may arise due to psychosocial stressors (e.g., depression or body image concerns) and the inverse may worsen psychological well-being. Treatments can have lasting effects that may impact sexual function, often reciprocally related to physical and psychosocial factors. Current treatments for sexual dysfunction involve topical products for vaginal symptoms (e.g., creams, pH-balanced gels, hyaluronic acid or vitamin E suppositories, natural oils, topical estrogen, or lubricants) and various counseling and educational interventions (e.g., mental health counseling, sex therapy, or couples-based psychotherapy). There is a general lack of research considering the ways in which intersectional concerns can impact sexual health experiences after BC. Existing studies do not often consider potential differences in needs that may arise due to ethnicity, age, or socioeconomic background. To address these limitations a significant paradigm shift in survivorship care. This requires moving beyond disease management towards a more holistic, comprehensive, patient-centered approach prioritizing comfort and sexual well-being.

Keywords: Sexual health; breast cancer (BC); cancer survivorship

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Introduction

Breast cancer (BC) is the most common malignancy worldwide (1). Yet, recent advancements in screening and treatment options for BC have reduced the global age-standardized mortality rate to 16.3 per 100,000 population and increased the 5-year survival rate to 90% (1,2). Increased prevalence and survival rates of BC and other cancers have led to a growing interest in improving long-term survivorship care (3). BC diagnoses not only present physical challenges but profoundly affect survivors' psychosocial well-being leading to many sexual health challenges within this demographic (4-6). Female sexual dysfunction is classified into three categories, including orgasmic disorder, sexual interest or arousal disorder, and genitopelvic pain or penetration disorder (7). A systematic review by Sousa Rodrigues Guedes *et al.* [2022], found that the risk of sexual dysfunction increased 3.5-fold among BC survivors compared to women with other forms of cancer (4). Additionally, BC survivors encounter significantly more sexual health problems and concerns when compared to women who had never received a BC diagnosis (8). Further, BC survivors, when compared to non-cancer-affected women are more likely to meet the criteria for a hypo-active sexual desire disorder (8). Sexual health after BC has emerged as a crucial dimension of survivorship.

The prevalence of BC and the increased risk of sexual dysfunction among survivors, demonstrated a need for increased provision of sexual health care counseling and treatment to these patients. The Society of Obstetricians and Gynaecologists of Canada (SOGC) offered specific treatment recommendations for sexual dysfunction among BC survivors (9). However, other guidelines were not as specific and may fail to address the BC-specific sexual health issues. The American Society of Clinical Oncology (ASCO) recently provided BC survivorship care guidelines but only briefly mentioned care for sexual dysfunction (10). Other groups such as the European Society for Medical Oncology, and the National Comprehensive Cancer Network provided non-breast-specific patient guides for survivors. These guides informed patients of potential sexual health concerns and encouraged patients to speak to their healthcare provider if they were experiencing sexual health concerns (11,12). However, survivors often struggled to raise these concerns with their physicians. Hill *et al.* [2011] evaluated the sexual health care needs in a sample of 261 survivors of breast and gynecological cancers (13). The results showed that even though 41.6% of patients reported an interest in receiving care for sexual issues, only 7% of women had requested it (13). As such, evidence suggested the benefit of proactive measures for sexual health.

The aim of this clinical practice review was to discuss the current literature and outline the knowledge gaps related to sexual health after BC, including survivors' sexual health concerns, as well as available prospective surveillance programs. Current literature on the sexual health needs of BC survivors was identified from online databases and published guidelines. Evidence was sorted into contributing factors, treatments and interventions, and practice recommendations. Contributing factors included physical, psychosocial, and treatment-related factors associated with sexual dysfunction among BC survivors.

Contributing factors

Physical factors

Pain during sex, dyspareunia, was typically considered the most common physical symptom that impaired women's sexual function after cancer treatment and was associated with genitourinary syndrome of menopause (GSM) and genitourinary changes including micro-abrasions, skin irritation, and atrophy (9). However, BC survivors experienced a variety of physical symptoms which impaired sexual well-being including general vaginal pain and pain with intercourse, breast pain, vaginal dryness and atrophy, difficulty reaching orgasm, and poor bladder control. Additionally, Oberguggenberger *et al.* [2017] found that BC survivors reported significantly more sexual health impairments, such as discomfort, compared to women without BC (8). Others, such as Albanaz da Conceição *et al.* [2020] have investigated the relationship between sexual dysfunction and pelvic floor muscle (PFM) strength (14). They found that survivors experienced weak PFM contractions and exhibited high levels of sexual dysfunction as measured by the Female Sexual Function Index (FSFI) (14). The results also demonstrated a negative association between PFM endurance and the FSFI orgasm and satisfaction domains (14). Similarly, a quasi-experimental study conducted by Faghani *et al.* [2016], found that 79% of post-mastectomy BC survivors reported that they were dissatisfied with their sexual functioning and 23% reported an inability to orgasm (15). Furthermore, Ganz *et al.* [1999], created a model to predict sexual health and satisfaction among BC survivors (16). The study found that vaginal dryness was associated with greater sexual dysfunction and decreased interest in sexual activity (16). This was echoed in a study by Avis *et al.* [2018] which found that vaginal dryness significantly increased sexual health problems among both sexually active and inactive women ($P<0.001$) (17). Additionally, a literature review conducted by Krychman *et al.* [2012] showed that women who regularly participated in sexual activity reported fewer symptoms of vaginal atrophy and had less evidence of atrophy on vaginal examinations when compared to sexually inactive women (18). The findings of these studies were consistent and demonstrated an inverse relationship between sexual activity and physical symptoms such as vaginal dryness, which is a common sign of vaginal atrophy. However, this was likely a bidirectional association. Other research has demonstrated the influence of menopausal status and age on the severity of symptoms experienced by BC survivors. For example, results from the study by Avis *et al.* [2018] study found that older age presented as a significant ($P<0.001$) predictor of inactivity (17). Furthermore, patients who were premenopausal at diagnosis had significantly lower sexual functioning and greater discomfort than similar-aged controls (19). Additionally, worse bladder symptom scale scores were reported in pre-menopausal BC survivors than in pre-menopausal controls (6).

Psychosocial factors

BC survivors may experience psychological symptoms from their diagnosis and treatment which has a reciprocal relationship with their sexual health. Avis *et al.* [2018] found that depressive symptoms were significantly associated with inactivity ($P<0.0001$) (17). Additionally, Vegunta *et al.* [2022] presented parallel findings that depressive symptoms were highest in survivors that struggled with sexual arousal (5). In a survey conducted by Ganz *et al.* [1999], better mental health scores were associated with greater sexual interest (16). Findings from a focus group study by Halley *et al.* [2014] also highlighted the psychological toll of breast loss and alteration (20). For example, one patient discussed the psychological concerns related to her awareness of losing her breast and her perceived loss of sexual desire following treatment (20). However, the relationship between sexual activity and the quality of mental health seems to be reciprocal. A survey conducted by Huynh *et al.* [2022] found that over 50% of patients reported that they struggled with body image and 75% stated that sexual health symptoms affected their mental health (21).

A multivariate analysis conducted by Oberguggenberger *et al.* [2017] found that depression may worsen these symptoms and found that lower depression scores were a predictor of higher partnership satisfaction (8). Similarly, Marsh *et al.* [2020] identified higher age, increased depressive symptoms, and lower partnership satisfaction as risk factors for poorer sexual health (22). These results were mirrored in the results of a study by Huynh *et al.* [2022] which found that sexual health symptoms affected BC survivors desire to participate (82%) and enjoy (80%) sexual activity (21). The study also revealed that this desire did not return even following the end of treatment. This is relevant considering that lack of sexual interest in married/partnered women scored as the highest problem rating (17). Additionally, BC survivors who experienced dissatisfaction with sexual function due to psychological distress surrounding body image, reduced sexual desire, and anxiety caused by disclosure of cancer diagnosis when dating. A series of qualitative interviews conducted by Tat *et al.* [2018] revealed that due to changes in the body, communication about sex with significant others or potential partners became complicated (23). Consequently, considerable navigation was required. This body of literature coincides with modern conceptualizations of mental health, namely the Hierarchical Taxonomy of Psychopathology (HiTOP) which places 'sexual problems' as a subfactor of 'internalizing' which encompasses other subfactors including distress, and fear (24). Romantic partnerships have been shown serve as either protective or as risk factor depending on the relationship's quality and the presence of other factors which may contribute to decreased sexual health. For example, Ganz *et al.* [1999], identified that having a partner also experienced sexual health problems was associated with decreased sexual satisfaction and found that this effect was strongest among younger women (16). However, they also found that patients with higher relationship scores reported greater sexual satisfaction (16).

Treatment-related factors

BC treatments can have lasting effects that increase the risk of sexual dysfunction, often mediated by the physical and psychosocial factors discussed above. As such, it is important to understand the effects of BC diagnosis and treatment on sexual health using a comprehensive patient-centered approach that considers how potential factors may have influenced the sexual health of BC survivors at an individual level.

A cross-sectional analysis of BC survivors conducted by Stabile *et al.* [2017] found that 42% (n=91) of patients reported developing new symptoms of sexual dysfunction following their cancer diagnosis (25). This increase in prevalence of sexual dysfunction is related to various BC treatment modalities including surgery, chemotherapy, endocrine therapy, and radiation. Tat *et al.* [2018] conducted a qualitative study of 135 BC survivors and identified three main themes that were barriers to sexual function after BC treatment (23). The themes identified were that BC survivors had to (I) adapt to the physical and emotional traumas of BC surgery and treatment; (II) navigate complicated sexual communications with potential and existing partners; and (III) negotiate intimacy and closeness without sexual intercourse with existing partners (23).

Dissatisfaction with physical appearance after surgery may relate to the type of surgery the patient underwent. For example, Dahlbäck *et al.* found that patients who had more than 20% of their breast volume removed reported less satisfaction with breast appearance including breast shape and postoperative scarring (26). Similarly, a quantitative study by Gass *et al.* [2017] which investigated the effects of surgical treatments for BC on sexual function using the FSFI and found that only 59.1% of women who received a mastectomy without reconstruction reported satisfaction with their appearance (27). Furthermore, the study found that compared to women who reported satisfaction with the appearance of their breast following surgery, patients who reported that they were "neutral/not satisfied" had significantly lower scores on the FSFI indicating lower sexual function (22.6 *vs.* 29.0, P=0.0002) (27).

A longitudinal observational study conducted by Avis *et al.* [2018] evaluated risk factors for sexual health problems and inactivity among a sample of 457 BC survivors (17). The study conducted a multivariable repeated-measures logistic regression analysis which found that having received chemotherapy was associated with significantly lower sexual activity when compared to survivors who were not treated with chemotherapy (P=0.03) (17). This was also shown in the data collected by Halley *et al.* [2014], who conducted focus groups with 21 BC survivors which also found worse sexual functioning among patients who had received chemotherapy (20). They identified that physical symptoms associated with sudden induced menopause such as hot flashes and vaginal atrophy led to increased pain during intercourse and suggested this may stem from chemotherapy and endocrine therapy (20). Furthermore, the results of a study conducted by Gorman *et al.* [2021] found that physical changes impacted body image and femininity (28). This was also demonstrated in a mixed-methods study conducted by Canzona *et al.* [2019] which suggested this may be due to weight changes caused by treatment (29). Furthermore, the study reported a low sexual quality of life scores for survivors with a mean score of 53.4/100 (29). The effect of chemotherapy on sexual health was also demonstrated in a cohort study by Soldera *et al.* [2018] which found that these patients reported worse scores for vaginal dryness and difficulty with bladder control when laughing or crying (6). A literature review by Vegunta *et al.* [2022] suggested that ovarian suppression due to chemotherapy led to vaginal symptoms such as decreased elasticity and lubrication, resulting in decreased libido and pain with intercourse, and that some chemotherapy regimens led to bowel and bladder incontinence, creating fear around engagement in sexual activities (5).

Treatments and interventions

Current treatment recommendations from SOGC are summarized in *Table 1*. SOGC currently recommends a variety of treatments for female sexual dysfunction after cancer treatment with vaginal moisturizers and lubricants suggested as first-line treatment (9). Similarly, a systematic review by Seav *et al.* [2015] investigated interventions for sexual dysfunction among BC survivors (7). The study identified four common intervention domains: vaginal products, systemic therapy, physiotherapy, and counselling/educational interventions (7). However, they found that there was little to no evidence supporting the use of systemic therapy or physiotherapy as a treatment for sexual dysfunction among BC survivors (7). The limited evidence for the use of systemic therapies such as bupropion (150 or 300 mg) and androgen therapy (e.g., testosterone) was supported in the recommendations from SOGC (9). However, it is important to note that testosterone is not currently approved by the Food and Drug Administration (FDA). Additionally, systemic therapies such as flibanserin (Addyi), have been shown to improve the sexual health of BC survivors (30). Flibanserin is a serotonin agonistic and antagonistic which approved by the FDA as a treatment for premenopausal women with hypoactive sexual desire disorder (31). Additionally, a recent study by Goldfarb *et al.* [2022], found that flibanserin was effective to increase libido among BC survivors receiving endocrine therapy (30). Unfortunately, others systemic treatments such as prasterone, a synthetic form of the natural hormone

Table 1 Summary of sexual health treatment recommendations from the SOGC (9)

Treatment	Indication	Considerations
Personal lubricants	• GSM • Dyspareunia • Skin irritation • Atrophy	Water-, silicone-, or oil-based lubricants may be used to reduce discomfort and friction with vaginal penetration. Lubricants should be recommended as an initial treatment
Vulvovaginal moisturizers	• GSM • Dyspareunia • Skin irritation • Atrophy	Creams (e.g., Replens), pH-balanced gels (e.g., RepHresh), hyaluronic acid or vitamin E suppositories, or natural oils may be offered to hydrate and maintain moisture in vulvar and vaginal tissues. Moisturizers should be recommended as an initial treatment
Low-dose vaginal estrogen	• GSM • Dyspareunia • Skin irritation • Atrophy	Creams, tablets, capsules or rings can be offered as subsequent therapy. Topical products should be applied both intravaginally and to the introital area. Recommendations should take into consideration interactions with current hormonal therapies
Vaginal laser therapy†	• GSM • Dyspareunia • Atrophy	Fractional microablative carbon dioxide lasers or nonablative photothermal erbium-doped yttrium aluminium garnet lasers may be offered as subsequent therapy
Vaginal dilators	• Vaginal stenosis	For patients who received pelvic surgery (e.g., hysterectomy)
Pelvic floor physical therapy	• Vaginal stenosis • Pelvic pain • Dyspareunia • Bowel or bladder incontinence	Teaches patients to contract and relax PFMs and improve muscle flexibility
Counseling and/or therapy	• Decreased libido/arousal	Mental health provider, sex therapist, couples-based psychotherapy should be considered alongside treatment of physiological symptoms
Pharmacologic interventions†	• Decreased libido/arousal	Bupropion (150 or 300 mg) or androgen therapy
Sexual aids	• Anorgasmia • Hypo-orgasmia	Aids such as vibrators and lubricants can be used to increase stimulation

†, evidence on efficacy is limited or uncertain. SOGC, Society of Obstetricians and Gynaecologists of Canada; GSM, genitourinary syndrome of menopause; PFM, pelvic floor muscle.

dehydroepiandrosterone which can be converted into testosterone and estradiol, has not yet demonstrated safety (32). However, some studies have shown that the use of intravaginal prasterone does not increase serum levels of estradiol and significantly improved vaginal health and sexuality (33). The use of topical hormonal treatments for vaginal atrophy was also evaluated by Seav *et al.* [2015], but they suggested that current research demonstrates uncertainty regarding the safety of these products (7). However, a meta-analysis conducted by Comini *et al.* [2023] found that vaginal estrogen had the most evidence and only minimally increased serum levels of estradiol (32). Conversely, they suggested that more evidence is needed to support the use of this product, especially for patients being treated with aromatase inhibitors (32). SOGC supports this claim, stating that the research suggests no risk of BC recurrence in patients using these products. However, these products should be offered as subsequent treatment if initial recommendations are not effective, and physicians should consider current hormonal therapies when making these recommendations (9). Outside of hormonal therapies, SOGC does recommend the promotion of pelvic floor physiotherapy to prevent vaginal stenosis in patients who received pelvic surgeries such as hysterectomies, which may be needed for patients diagnosed with BC with genetic origin, and for treatment of pelvic pain, dyspareunia, and bowel or bladder incontinence (9). As an alternative, counselling and education-based programs have shown some promise as interventions to improve the sexual health of BC survivors.

Bober *et al.* [2020] conducted an intervention with 19 young BC survivors composed of a 4-hour intervention focused on sexual health rehabilitation, body awareness exercises, and mindfulness-based cognitive therapy skills and included a follow-up phone call 1 month after the intervention to reinforce learning (34). The results demonstrated significant improvements in total scores on the FSFI increased (P=0.021) as well as sub-scales including lubrication (P=0.006) and orgasm (P=0.040) (34). A similar intervention was conducted by Faghani *et al.* [2016] in a quasi-experimental study to evaluate a sexual health rehabilitation program for post-mastectomy BC survivors using the PLISSIT (Permission, Limited Information, Specific Suggestion, and Intensive Therapy) model for 50 patients and compared to a control group of 50 patients that received standard care (15). The intervention was provided to both survivors and their partners but only included heterosexual couples (15). Counseling was delivered over 90-minute sessions to both the patients and their husbands, focusing on a different aspect of the intervention (Permission, Limited Information, and Intensive Therapy) (15). The results showed significant improvements in the sexual health of patients receiving the intervention both from baseline and compared to the control group (15). Other studies have investigated the incorporation of media into sexual health interventions. For example, Reese *et al.* [2021] conducted a randomized control trial of 144 BC survivors to evaluate the efficacy of a multimedia intervention, Starting the Conversation (STC), to address sexual health needs (35). Patients in the intervention group were given a 20-min video, workbook, and resource guide, while controls only received a resource guide (35). The study found that patients in the STC group were more sexually active compared to women in the control arm (70% *vs.* 46%, P=0.04) (35). Additionally, women who participated in the STC group were significantly (P<0.05) more likely to raise the topic of sexual health and ask related questions at their next clinic visit than patients in the control and demonstrated significantly higher sexual health communication and self-efficacy skills (35). Furthermore, meta-analyses of counseling and education interventions have found positive outcomes of this type of program.

A meta-analysis by Lu *et al.* [2022] investigated the effects of nursing interventions for BC survivors and found a significantly increase overall in sexual quality of life significant improvements (P<0.001) were observed in sexual function, sexual satisfaction, general quality of life, and depression (36). However, no significant improvements were observed for body image or anxiety (36). Another meta-analysis by Xu *et al.* [2023] investigated psychological interventions and generated similar results, illustrating statistically significant improvements in sexual function, sexual satisfaction, sexual relationships, and sexual distress (37). Furthermore, they conducted a subgroup analysis of intervention types and identified cognitive behavioral therapy and psychoeducational therapy as beneficial for sexual function and satisfaction, as well as psychosexual counseling to improve sexual function (37).

Patient preferences and clinician communication

It is important to investigate patient preference for receiving sexual health care to ensure patients have received information in a supportive environment that ensures all their needs have been addressed. A study by Gorman *et al.* [2021] investigated sexual health communication strategies for young BC survivors (diagnosed before the age of 40 years) (28). They conducted telephone interviews with 29 survivors to identify strategies for improving sexual health communication between patients and providers (28). They identified three main themes through their analysis of the interviews, finding that these patients wanted (I) reproductive and sexual health concerns to be normalized and integrated into provider assessment concerns; (II) hoped for providers to demonstrate genuine care and investment; and (III) improved accessibility of comprehensive reproductive and sexual health services after cancer (28). However, there is not always alignment between patient and provider perspectives. Canzona *et al.* [2019] conducted interviews with forty BC survivors and forty healthcare providers to evaluate sexual health communication preferences and identify potential disconnects between patient and provider perspectives (29). There were discrepancies between patients and providers opinions on when these conversations should take place and how they should be initiated, as well as disagreements on the types of language used, and behaviours exhibited during the discussion (29). The differences observed between patient and provider preferences highlight the importance of understanding and incorporating patient preferences into practice to ensure that patients are comfortable and feel that their needs have been properly addressed. Patients and providers agreed on the importance of honoring individual patient needs and conveying compassion during discussions of sexual health (29). The importance of addressing individual patient needs was also identified in a study conducted by Huynh *et al.* [2022] which included interviews with 16 patients who had been involved in the main study to discuss preferences for sexual health communication (21). Patients explained that there was need to offer a variety of options to patients rather than framing sexual health as a "one-size-fits-all" discussion (21). The patients interviewed in this study also stated that they received little to no information on the topic from their health care team and would prefer on-going and frequent discussions about sexual health throughout their treatment and during follow-up (21). The need for more communication has been identified by patients in various studies such as Albers *et al.* [2020], which found that 80.4% of patients received no information on sexuality and that out of nearly a quarter of women who reported needing this information, only 62% of them did not receive it (38). The study used a cross-sectional design to survey 173 BC survivors and their partners (n=76) to identify preferences for sexual health information delivery, including content, timing, and type of provider sharing the information. Patients and their partners stated they would prefer to receive sexual health information via a brochure (38). However, if they were to speak to a healthcare provider, a nurse practitioner was preferred and 61.3% of patients stated that it was important for their partner to be present for the discussion (38). Another study found that most female BC patients were open to talking about their sexual health, despite the fact that it was carried out in the Middle East, a region known for its more conservative culture. This highlights an encouraging trend, even within conservative communities to communicate and tackle this issue (39).

Gaps and limitations in the literature

One of the most notable gaps is the current research landscape's focus on the average BC survivor and limited research on the incorporation of individual patient experiences. There is a general lack of research considering the ways intersectional concerns can impact experiences of sexual health after BC. For example, existing studies do not often consider potential differences in needs that may arise due to ethnicity, age, socioeconomic and cultural background. These factors are usually important in moderating or exacerbating the impact or burden of disease. Further, almost all the literature focuses on the experience of cisgender women with male partners. There is a distinct lack of research on the experiences of more diverse populations, including men with BC or gender and sexual minorities, whose sexual health needs may be different. Considering the importance of partner relationship dynamics in determining sexual health, this represents a significant portion of the population for whom BC's impact may not be adequately captured.

As intimacy and sexual health are sensitive topics for many, practitioners must take patient comfort and preference into account. Few studies fully incorporate patient perspectives into the development and assessment of interventions for sexual health after BC. The studies that investigate patients' perspective are qualitative with smaller sample sizes. However, they demonstrate that patients often do have preferences on how these conversations should be approached, who they are most comfortable receiving sexual health information from, and numerous other considerations. While patients' views are always an important consideration, they are especially relevant to sexual health, which can be a sensitive topic for many. Future research should investigate the efficacy of various methods of communication and integrate patient preferences into evaluation strategies to maximize patient comfort and response rates.

Conclusions and recommendations

Sexual health is a vital component of many BC survivors' lives and deserves particular attention. Addressing the various impacts that BC and its treatment can have on intimacy, relationships, and sexual health requires a significant paradigm shift in survivorship care. A wide range of treatments are available to assist BC survivors experiencing sexual health concerns but there is a lack of knowledge and communication about these options. Addressing this requires moving beyond disease management towards a more holistic, comprehensive, patient-centered and culturally appropriate approach prioritizing comfort and sexual well-being. Moving forward, there is a need for health care providers to actively screen patients for sexual health concerns stemming from the physical, psychosocial and treatment related side effects of BC. Through doing so, care providers will be better able to provide patients with the treatments needed to improve their sexual function and quality or life. However, future research is needed to address gaps in the literature to revolutionize survivorship care. This research can be used to adjust current guidelines to address the unique sexual health challenges of BC survivors and provide outlines detailing how to best screen for sexual health concerns. Overall, allowing providers to empower patients and help them to reclaim and enhance their overall quality of life.

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Footnote

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